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COATING COMPOSITION FOR ERASABLE PAPER COMPRISING POLYVINYL ACETATE EMULSION, HYDROXYETHYLATED STARCH DISPERSION AND COLLOIDAL SILICA AND ERASABLE PAPER COATED THEREWITH

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ABSTRACT OF THE DISCLOSURE

A coating for an erasable paper includes polyvinyl acetate, chemically modified starch and an anti-blocking agent mixed in approximately 14:5:1 proportions, respectively.

This invention pertains to coated paper, especially typewriter paper adapted to withstand erasure of indicia marked thereon, to efficient coating compositions therefor which are amenable to the various other treatments such papers may be required to undergo, and to processes for the application of such coatings.

INTRODUCTION

Erasability may be defined as the property which allows typewriter ink impressions to be removed by an ordinary pencil eraser without abrasive interference with retyping upon the erased area.

Typewriter impressions are generally made from a ribbon containing an oil base ink, such as carbon black in a toner or tint oil. Typing erasability should not, however, be acquired at the expense of compatibility of the coated paper with signature inks, letterhead printing inks, and other indicia forming materials or processes.

In the past casein, starch, and synthetic resin systems have been employed for erasable paper. With each of these prior systems it is necessary to compromise one or more of the several optimum attributes. Casein coating compositions because of their viscosity require multiple passes through the coating size press for the deposit of a sufficiently thick surface film. Gum arabic may be deposited in one pass but it has little or no water resistance and cannot be lithographed. Starch coatings are brittle and the resultant paper flexure strength is poor. Synthetic resin systems are generally expensive and usually exhibit blocking, sticking together of sheets, and difficult to control writing quality variations.

OBJECTS

It is a general object of this invention to provide improved coated paper compatible with a wide range of writing, printing and other marking systems and especially adapted to allow rapid, clean erasure of typing corrections without deleterious effect upon subsequent retyping.

It is a further general object to provide improved erasable paper coating compositions which are economic, relatively easily controlled and which allow for deposit of an effective erasable coating during a single pass of a base paper web through a conventional size press.

It is a further general object to provide an efficient process for application of such coatings to conventional

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base paper webs with conventional paper coating apparatus.

A specific object of this invention is to provide improved coated paper from which typing corrections may be rapidly and cleanly erased without deleterious effect upon subsequent retyping and which coated paper is water stable, unaffected by thermal indicia production processes, receptive to further sensitized coatings, and retentive of flexure strength and permanence of the base paper.

A further specific object is to provide an improved erasable paper coating composition employing readily available water dispersible ingredients in low viscosity, high solids, surface sizing formulations applicable to conventional base paper webs during a single pass through a conventional size press and yielding optimum typing erasability characteristics for the coated paper with conservation of the base paper attributes and improved handling characteristics especially including non-blocking of stacked sheets.

BRIEF STATEMENT OF INVENTION

In accordance with this invention, the improved erasable coating comprises polyvinyl latex emulsion, hydroxyethylated starch, and colloidal silica, according to the respective dry weight ratio of about 14:5:1, and water; the improved erasable paper comprises a base paper web coated with the improved coating composition; and the improved processes comprise single pass size press coating of the base paper web with the improved coating composition, followed by drying in air under specific conditions of temperature, viscosity, and acidity.

DETAILED DESCRIPTION OF INVENTION

While this invention is particularly pointed out and distinctly defined in the claims appended hereto, a better understanding together with additional objects and advantages will be had upon consideration of the following specification, including specific examples of optimum and preferred material and other parameter ranges.

While advantages may be realized in other environments, this invention contemplates application of the erasable coating composition to a base paper web by a conventional size press because of its recognized efficiency and economy. Viscosity of the coating composition is of primary concern and should be below the viscosity levels at which size press roll slippage is initiated with its attendant uneven coating, web weaving, and other costly and inefficient effects. On the other hand, viscosity usually varies directly with solids content of the coating composition and the latter factor should be great enough to yield a sufficient coating thickness during a single pass through the sizing apparatus. Operating cost is an obvious factor here, but coating non-homogeneities and other more subtle effects are also to be considered.

The paper to be coated according to this invention may be any typing paper grade but it is preferably a rag bond comprised of 75% chemical wood pulp and 25% cotton linter or rag fibers and treated with an internal size under alkaline conditions and an initial wet starch size during web formation.

The major constituent of the coating composition is a polyvinyl latex in the form of a suitable dispersion of the type resulting from the aqueous emulsion polymerization of the vinyl acetate monomer. It should be realized, of course, that additives may be present in the emulsion